

Appln. No. 10/698,722
Amendment dated November 12, 2007
Reply to Office Action of May 18, 2007

The listing of claims will replace all prior versions and listing of claims in the application:

Listing of Claims:

Claim 1 (previously presented). A method for applying a barrier to a structure to prevent the infiltration of pest species, comprising the steps of:

- (a) providing a composition, which comprises:
 - (i) a polymer component; and
 - (ii) a bead comprising exfoliated colloidal clay and adsorbed pest control agent, which bead is dispersed in said polymer component; and
- (b) applying a layer of said composition to said structure.

Claim 2 (original). The method of claim 1, wherein said polymer component is one or more of polyethylene, polypropylene, polybutenes, natural rubber, polyisoprene, polyesters, styrene butadiene rubber, polyacrylates, polymethacrylates, polyethylene terephthalate, epoxy resins, unsaturated polyester resins, or polyurethanes.

Claim 3 (original). The method of claim 1, wherein said composition also contains one or more of powdered pepper, a pepper extract, an antimicrobial agent, pigments, ultraviolet radiation absorbers, molecular sieves, or silica gel.

Claim 4 (original). The method of claim 2, wherein said polyurethane polymer component is formed from a non-aromatic diisocyanate.

Claim 5 (original). The method of claim 4, wherein said polyurethane polymer component is formed from said non-aromatic diisocyanate and a diol chain extender of up to 12 carbon atoms.

Claim 6 (original). The method of claim 2, wherein said polyurethane polymer component is enriched in urea linkages.

Claim 7 (original). The method of claim 6, wherein said urea linkage are formed from the reaction of a non-aromatic polyisocyanate with the reaction product of a diisocyanate and a diamine.

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Claim 8 (original). The method of claim 7, wherein said diisocyanate is one or more of toluene diisocyanate (TDI), methylene diphenyl diisocyanate (MDI), polymeric methylene diphenyl diisocyanate (PMDI), hexamethylene diisocyanate (HDI), isophorone diisocyanate (IPDI) and said diamine is one or more of 4,4'-methylene dianiline, 1,4-diaminocyclohexane, 2,4-diaminotoluene, 2,6-diaminotoluene, 1,4-diaminohexane, or an amine-terminated polyether.

Claim 9 (original). The method of claim 7, wherein an excess of polyisocyanate is used to form said reaction product.

Claim 10 (original). The method of claim 2, wherein polyurethane polymer component is formed from an aliphatic or alicyclic isocyanate.

Claim 11 (original). The method of claim 10, wherein said aliphatic or alicyclic isocyanate is one or more of 1,6-hexamethylene diisocyanate (HDI), 1,4-tetramethylene diisocyanate, hydrogenated methylene diphenyl diisocyanate, 1,4-cyclohexane diisocyanate, or isophorone diisocyanate.

Claim 12 (original). The method of claim 10, wherein polyurethane polymer component also is formed from a polyol having a molecular weight of less than about 1,000.

Claim 13 (original). The method of claim 10, wherein said polyurethane polymer component contains hard segments made by one or more of the use of polyisocyanates having greater than 2 isocyanate groups per molecule; use of polyol having a molecular weight of less than about 1,000 and greater than 2 hydroxyl groups per molecule; an excess of isocyanate is used; or reaction of said isocyanate with an amine.

Claim 14 (original). The method of claim 13, wherein said isocyanate is polymeric methylene diphenyl diisocyanate, and said polyol is one or more of trimethylolpropane, glycerin, Sorbitol, glycerin, polyether triols, trimethylol propane polyether triols, or hydrogenated castor oil.

Claim 15 (original). The method of claim 2, wherein polyurethane polymer component is formed from an aliphatic or alicyclic polyol.

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Claim 16 (original). The method of claim 15, wherein said aliphatic or alicyclic polyol is one or more of hydroxy terminated polybutadiene, straight chain hydrocarbons that have 8 to 30 carbons with hydroxyl groups at each end, carbocyclic rings that contain from 5 to 32 members with hydroxyl groups that are not on adjacent carbons, or carbocyclic rings that contain from 5 to 32 members that have one or more rings and that have two straight chain hydrocarbon chains that are substituents with two hydroxyl groups present, one at the end of each pendent chain.

Claim 17 (original). The method of claim 15, wherein polyurethane polymer component is formed from an aliphatic or alicyclic polyol.

Claim 18 (original). The method of claim 1, wherein said applying is one or more of spraying, roller coating, or brush coating.

Claim 19 (original). The method of claim 1, wherein the wherein the pesticide is one or more of bifenthrin, pyrethrin, tefluthrin, lambdacyhalothrin, cyfluthrin, deltamethrin, isofenphos, fenvalerate, cypermethrin, or permethrin.

Claim 20 (original). The method of claim 1, wherein said structure is composed of one or more of wood, wood-containing material, wood-derived material, metal, masonry, cementitious material, metal, ceramic, or fiberglass.

Claims 21 and 22 (cancelled).

Claim 23 (original). The method of claim 1, wherein said pest species is one or more of microbes, fungi, algae, bacteria, viruses, spores, insects, birds, land animals, mollusks, or rodents.

Claim 24 (original). The method of claim 23, wherein said pest species is one or more of termites, ants, boring wasps, deer, squirrels, mice, rats, clams, oysters, or mussels.

Claim 25 (original). The method of claim 20, wherein said wood structure is one or more of lumber, plywood, particleboard, oriented strand board (OSB), medium density fiberboard (MDF), laminated veneer lumber (LVL), laminated beams, cellulose insulation, paperboard, or kraft paper.

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Claim 26 (original). The method of claim 1, wherein said polymer component is one or more of a coating composition, a sealant, a caulk, or an adhesive.

Claims 27 and 28. (cancelled).

Claim 29 (previously presented). The method of claim 1, wherein the exfoliated colloidal clay has all three dimensions within the size range of 0.5 nanometers to 3000 nanometers.

Claim 30 (previously presented). The method of claim 1, wherein the exfoliated colloidal clay particles have an aspect ratio greater than about 50, thickness less than about 10 nanometers, and other dimensions greater than about 500 nanometers.

Claim 31 (original). The method of claim 1, wherein the exfoliated colloidal clay is derived from a smectite.

Claim 32 (original). The method of claim 31, wherein said smectite is one or more of is montmorillonite, beidellite, nontronite, saponite, sauconite, or bentonite.

Claim 33 (previously presented). The method of claim 31, wherein the exfoliated colloidal clay is derived by melting a solid active ingredient and blending it with a smectite to make an expanded product.

Claim 34 (previously presented). The method of claim 31, wherein the exfoliated colloidal clay is derived by blending a fluid active ingredient with a smectite to make an expanded product.

Claim 35 (previously presented). The method of claim 1, wherein the exfoliated colloidal clay is derived from one or more of vermiculite or illite.

Claims 36-67. (cancelled)